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THE STRUCTURE OF ELECTROCHEMICAL ADSORBATES

by

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<p>We attempted to obtain the X-ray absorption spectrum at the bromine edge of a submonolayer of bromide ion adsorbed electrochemically on an Ag(III) surface. During the experiment, the silver electrode was immersed in solution and held at controlled electrochemical potential. We employed grazing incidence excitation with fluorescence detection. A clear edge jump was observed, but with the available collection time, the resulting spectra did not have a good enough signal-to-noise to be useable. Good transmission EXAFS spectra of model compounds $MgBr_2 \cdot 6H_2O$, $AgBr$ and $NaBrO_3$ were obtained. In addition, X-ray absorption spectra of a series of copper containing model compounds (anhydrous $CuSO_4$, $CuSO_4 \cdot 5H_2O$, Cu_2O, CuO and Cu metal) were measured. The amplitude and phase parameters of the adsorber-backscatterer pairs, $Cu-O$, $Cu-S$ and $Cu-Cu$, have been extracted and will be used to analyze the EXAFS spectrum of a half monolayer of Cu deposited on a $Au(III)$ single crystal substrate, which was obtained earlier.</p>			
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THE STRUCTURE OF ELECTROCHEMICAL ADSORBATES

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We attempted to obtain the x-ray absorption spectrum at the bromine edge of a submonolayer of bromide ion adsorbed electrochemically on an Ag(111) surface. During the experiment, the silver electrode was immersed in solution and held at controlled electrochemical potential. We employed grazing incidence excitation with fluorescence detection. A clear edge jump was observed, but with the available collection time, the resulting spectra did not have a good enough signal-to-noise to be useable. Good transmission EXAFS spectra of model compounds $\text{MgBr}_2 \cdot 6\text{H}_2\text{O}$, AgBr and NaBrO_3 were obtained. In addition, x-ray absorption spectra of a series of copper containing model compounds (anhydrous CuSO_4 , $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$, Cu_2O , CuO and Cu metal) were measured. The amplitude and phase parameters of the absorber-backscatterer pairs, Cu-O, Cu-S and Cu-Cu, have been extracted and will be used to analyze the EXAFS spectrum of a half monolayer of Cu deposited on a Au(111) single crystal substrate, which was obtained earlier.

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